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THE EARLY SYMPTOMS OF GENERAL PARALYSIS OF THE INSANE.*

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As physician in hospitals for the insane, I have received many cases of general paralysis in which there had been an entire failure to appreciate correctly the, at least, possible import of various symptoms appearing before the unmistakable ones, which failure was sometimes attended with serious injury to the patients or others; for in disorders affecting the organ which controls the individual in his moral obligations, professional duties, social relations, and business transactions, the early recognition even of disease which we are forced to regard as incurable, has more practical importance than exists in disease of other organs, where an early accuracy of diagnosis often simply hastens the "verdict of despair" to the patient without benefiting his fellows; and among the various forms of mental disorder, there is probably none which, in proportion to its frequency, so often before its recognition ruins the laboriously acquired and carefully guarded reputation of a lifetime, or involves relatives in scandal and financial reverses.

This failure of appreciation of early symptoms is probably partly because general paralysis, unlike most other forms of

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disease attended with mental decay, does not usually select its victims from those who have inherited weak and unstable nervous organization, but from the capable and vigorous, in whom no one expects weakness to show itself, and partly because certain mental symptoms are so striking, that we are liable to identify them with the disease, and not recognize it without them.

My remarks are based on an analysis of the histories of one hundred cases, and I think that they possess more accuracy as to fact than the average of such histories, because I have taken the cases of such patients only as had been under the careful observation of friends whom I believe to be intelligent and reliable.

This plan is open to the objection that the facts are largely obtained from non-medical and non-expert observers, but this is a source of error that cannot be avoided in studying mental disease, because the earlier symptoms have usually persisted some time before the case comes to the general practitioner, and still longer before it reaches the specialist, and, as subjective examinations as to previous history cannot be considered reliable, the observation of friends is our only resource; and it may be said in favor of the accuracy of my facts, that friends are much more likely to recall slight changes in a retrospect, and to frankly tell the whole truth concerning mental symptoms when they have become sufficiently marked to render it desirable to send the patient to a hospital, than earlier, when they feel anxious to cover up improprieties and weaknesses. It is also true of these cases, that they were selected at a time when the diagnosis was unmistakable, so that, whatever may be said as to the occurrence of similar nervous symptoms in patients who do not become general paretics, it is undoubtedly true that they were in these patients the warnings of that disease, and my aim is, not so much to record

the symptoms after they have become sufficiently characteristic for a certain diagnosis, as to show what are actual danger signals that should render the physician alert and observing; the recognition and observance of which would, I am sure, prevent much financial loss as well as danger to individuals, and unjust condemnation by legal tribunals and society; and it is reasonable to suppose that the nearer the beginning we start, the more likely we are to prevent the dire ending which we now regard as inevitable. That these signals will be most varied and inconstant follows from the nature of the disease they indicate, as we must remember that there is no variety of nerve-tissue, in the cerebro-spinal or sympathetic system, which has not been proved to suffer degenerative lesion consequent on this disease, or which has not been claimed, with fair assurance of accuracy, to have been the seat of the initial active lesion of its commencement. Lewis has traced the descending degeneration as far as the sciatic nerve, and Westphal and others have described ascending degeneration from lesions of the spinal cord, traumatic and others, while some recent observers think that some cases at least have the origin ascribed to the disease by MM. Poincaré and Bonnet, who, in 1863, found marked changes in the sympathetic ganglia and considered them primary. As this paper is not designed for those who have given special attention to nervous diseases, I will venture to recall the variety of symptoms likely to be present, and I will enumerate them as nearly as possible in what I believe to be their order of frequency. It is a disease always presenting during its course both motor and mental symptoms, which, however, may vary greatly in their character, intensity, and order of appearance. The motor symptoms are always evidences of diminished muscular power or control, and may affect any muscles, but usually do appear first in those groups whose

functions require the greatest harmony and nicest adjustment in action. Hence the common early motor symptoms are defective articulation, tremor of the tongue, tremor of the facial muscles when expressing emotion, irregular chirography, inability to control the hands in such nice movements as are requisite in playing musical instruments, general tremor, inco-ordination or paretic weakness of gait, and occasionally localized clonic spasms, most frequent in the face. Perhaps, too, the seizures which occur sometimes during the history of most cases may best be included with the motor symptoms. These may occur at any time, and may simulate petit mal, grand mal, apoplexy, or have a mixed character rather peculiarly their own.

Of sensory symptoms there may be dysæsthesia, hyperæsthesia, anæsthesia; and, exceptionally, almost any variety of neuralgia.

My experience leads me to regard disorder of the special senses as a rare early symptom and not very frequent later one, but both impaired function and hallucinations of all are reported.

To the sympathetic system probably may properly be charged most of the pupillary changes, which are: inequality, usually shown most strikingly by the failure of one pupil to dilate as readily as the other in moderate light; a marked decrease in the size of both, making sometimes the pin-hole pupil, and sluggishness in action in varying light, in accommodation, and in answer to sensory stimuli. To the vaso-motor control of the sympathetic must also, I think, be ascribed the irregularities in the superficial circulation frequently shown by localized or general flushings, resembling that seen in one accustomed to alcoholics when slightly under their influence. There are other symptoms which cannot well be classified pathologically, but which possess some value for diagnostic purposes; as the condition

of the tendon reflex, which may be not noticeably changed, increased, or absent.

Similar changes of increase or diminution may occur in the skin, cremasteric and sphincter reflexes, but are not often seen until later in the disease.

All known mental symptoms are found with greater or less frequency, those usually considered characteristic being a marked feeling of self-complacency and content, and delusions of wealth, greatness, and power.

Eighty-seven of my one hundred cases were men and thirteen women, but I have not considered them separately except as regards some mental symptoms which seem modified by sex.

The frequency with which each of the various physical symptoms mentioned appeared as the first physical change is as follows:

Some defect of articulation thirty-eight times. The text-books often attempt to enumerate various kinds of articulatory defect that occur in general paralysis, but any such classification is rather incomplete and misleading, as any part of the articulatory apparatus may be chiefly affected and all kinds of disorder occasioned thereby. A hesitancy of speech, recognized best when the patient is quietly conversing, and an occasional elision of a syllable, best recognized when the patient is earnestly conversing, are probably most frequent.

Some form of seizure appeared first twenty times. Thirteen of these seizures resembled closely the convulsions of grand mal, the patient falling to the ground and being generally convulsed, but none of them are known to have given the epileptic cry, and the succeeding coma or stupor was much more pronounced and prolonged than in ordinary epilepsy. Four of this thirteen were sent to the hospital diagnosed simply as cases of epilepsy.

Four of the seizures resembled petit mal, the patients losing consciousness, but having no noticeable convulsion. And three were considered apoplectic attacks, and resembled apoplexy in that the patient fell and remained completely or partially comatose for a time, with little or no convulsive movement. My cases indicate that seizures should have greater prominence as early symptoms than is given them by most authors, but I am unable to say whether they are exceptional in this respect or not.

Tremor of the lips and face was noticed first eight times.

Inco-ordination of gait, ten times.

Diminished sexual power, six times.

General tremor, six times.

Cutaneous numbness and tingling, three times.

Changed chirography, two times.

Dilatation of superficial capillaries and sensation of heat, once.

Dilatation of superficial capillaries and marked hyperidrosis, once (I have seen this same marked hyperidrosis in one other case as a later symptom).

Localized cutaneous hyperæsthesia, once.

General cutaneous hyperæsthesia, once.

Ptosis, external strabismus, and diplopia, once in a syphilitic case.

Diplopia alone, once in a syphilitic case.

Failure of sight from atrophy of the optic nerve, once in a syphilitic case.

Nine of these patients also suffered from decided pain and discomfort in the head previous to other symptoms—it being sufficiently marked in four cases to excite suspicion of brain disease.

There are some other symptoms which may have appeared early and escaped notice, as they are of a character not likely to attract the attention of the non-medical

observer, and I can only give their relative frequency at the time the patients were admitted to the hospital, which was at varying stages of the disease. Thus the patellar-tendon reflex appeared normal in forty-six cases; markedly supra-normal in twenty-four cases; very marked but not necessarily supra-normal in fourteen; very slight but not necessarily below normal in twelve; absent in four.

The number of cases in which it was found supra-normal is comparatively greater, and the number in which it was found slight or absent less, than in those observed by Mickle in England and Westphal in Germany, but corresponds pretty closely with Shaw's observation in this country.

My whole experience, which extends over a larger number of cases than the one hundred mentioned, agrees with the ratios of their figures as to patellar-tendon reflex, and my estimate of its usefulness in diagnosis is as follows: The absence of change does not render the disease improbable.

Well-marked exaggeration in both legs is strong *corroborative* evidence of general paralysis. Diminution or absence of it is decidedly less so, but still has some value.

There has always been disordered gait in the cases where I have seen it absent, and, I have no doubt, tabetic lesion of the cord.

I carefully observed the length of duration of the disease at the time when the examination of the knee jerk was made, but there was no indication of a connection of particular conditions with different stages.

On admission the size of the pupils was unequal in sixteen of my cases, the right being larger in ten, and the left in six. Both pupils were abnormally small in six cases, and both dilated in four. None of these changes seemed more frequent at one stage of the disease than at another.

These figures indicate that inequality of the pupils is not very common, and my own opinion, based on the examina-

tion of other cases, in addition to these, is that its diagnostic importance is usually overrated by the text-books, as its absence has no significance and its presence may be the result of several causes other than general paralysis.

The mental change which appeared first most frequently was failure of capacity. This was true of thirty-six cases, it being chiefly noticeable in nineteen, because of impaired power of memory, and I will venture to remind you that, as this failure is most frequently due to lessened power of attention, the examination should not be concerning events occurring long ago when there was presumably mental integrity, but concerning trivial matters of recent occurrence. Dr. Holmes makes his old man testily refute this imputation of failing memory by saying: "I remember my great-grandma! She 's been dead these sixty years."

And many a general paralytic can give you an accurate history of the events of his previous life long past, when he is unable to tell you where he dined day before yesterday. It is also true that the memory will occasionally assist the patient to conceal failure of reasoning power, as in the case mentioned by Mendel, where the patient answered readily and correctly, that twelve times twelve is 144, but made twelve times thirteen a less number.

In eleven cases the mental failure was evinced by poor judgment in business, without manifest change in activity or habits of life, and in six cases this entailed serious financial reverses on the patient and his family.

In the remaining six cases of mental failure it appeared simply in mental sluggishness, great and unaccustomed disinclination for mental or physical exertion, accompanied in three cases by a striking tendency to sleep.

Marked depression without obvious delusion was noticed first twenty-two times. Marked exhilaration and self satisfaction, seventeen times. This was accompanied by erotism

in nine cases, two of them attempting rape, two indecent familiarities and exposure, and three began an unusual and scandalous course of licentiousness. Several others of this class, before abstemious, became addicted to alcoholic excesses, and attention was attracted to two by thefts which were undoubtedly the outcome of the disease, though not so recognized until the courts had taken action in both cases and one of the men was in prison.

Insane delusions were noticed first twenty-five times. They were the characteristic ones of wealth and greatness in twelve cases.

Six showed a variety of delusions of persecution; six believed their wives unfaithful, probably chiefly because their erotic desires met repulse, and were dangerous to them thereby; and one had general delusions, based on hallucinations of hearing.

Maniacal excitement, of extreme intensity, sometimes appeared very rarely in fifteen cases, but was not the first symptom noticed.

The thirteen women exhibited no marked variation from the men in physical symptoms, but the mental symptoms were commonly much less pronounced and active.

Six showed simple dementia. Three had definite delusions that men outraged them; and two, delusion that some spirit or angel had sexual intercourse with them.

Two had ordinary delusions of persecution. Several of those who had delusions of being outraged thought themselves pregnant, and this is by some observers considered a frequent delusion among female general paralytics. I think that the delusions as to sexual intercourse usually depend on the misinterpretation of an orgasm, experienced at night; and those of pregnancy, indirectly on the same, or on anomalous sensations in the abdomen.

Three of these women were of very good social position,

and this is a larger proportion than is found abroad, where general paralysis is considered very rare among those having the social rank of ladies.

The relative time of appearance of the two classes of symptoms was as follows : In sixty-eight cases the mental and motor symptoms were noticed at the same time.

In twenty-four, mental symptoms alone first attracted attention; and in eight, the motor symptoms.

These figures are undoubtedly inaccurate, as slight changes, particularly of a motor character, might readily escape the notice of a non-expert observer, and some motor changes would unquestionably have been observed by an expert in many of the twenty-four cases which are recorded as presenting mental symptoms alone at first, but they do show that much difference of time between the appearance of these two classes of symptoms is exceptional, though it is true that either may show remissions or intermissions early in the disease, so that their existence can only be learned by careful questioning as to the previous history. Thus, one may see a patient laboring under intense maniacal excitement, in whom no motor paresis can be detected, but who has a history of previous convulsive seizures, or attacks of unconsciousness, which change the diagnosis from curable mania to general paralysis. In one of my cases, a woman, marked defect of articulation was for some time regularly present each morning, but disappeared before noon, and it is not at all uncommon to see pronounced symptoms of any kind diminish greatly or disappear, if the patient is changed from excitement and dissipation to a quiet routine of life.

In the few cases where mental symptoms appeared to me to unquestionably precede the physical, they were almost invariably those of marked depression not reaching the grade of positive insanity, and the physical symptom that appeared alone first most frequently was some form of seizure.

Finally, the symptoms presented by these cases appear to me to indicate, with the somewhat moderate weight of authority to which their numbers entitle them :

1st. That the striking and characteristic group of symptoms ascribed to the disease by Calmeil in 1826, and having greatest prominence in most text-books since, is to be found only exceptionally in the cases of to-day at the time when the diagnosis is most important.

2d. That physical and mental symptoms usually appear nearly synchronously, so that the physician has the presence or history of both to aid him when called upon for a diagnosis, and it is probable that most of those who report cases of general paralysis without mental impairment are not sufficiently expert to recognize a moderate degree of dementia.

3d. That their observations agree with those of most writers in making defective articulation the most frequent and characteristic early motor symptom.

4th. That changes in the pupils and disorders of gait are less frequent and have less value in diagnosis than is usually ascribed to them, and that given pupillary changes are no more frequent in one stage of the disease than in another.

5th. That the patellar-tendon reflex is found markedly supra-normal in nearly twenty-five per cent. of general paralytics, and that the presence of this symptom is of strong corroborative value in diagnosis, though its absence has none, and that no peculiar condition of the patellar-tendon reflex can be associated with any given stage of the disease.

6th. That hallucination or impaired function of the special senses is very rare as an early symptom ; hallucination (auditory) having been noticed first in but one case, and impaired vision but once in a syphilitic case. The

diminution in the sense of smell, which Voisin thinks very frequent in the early stages, was not noticed in any of my cases, though it may have been present and escaped attention in some, as slight failure is difficult to recognize.

7th. That it is of great importance in the case of a patient showing mental symptom to inquire carefully for a history of convulsions or loss of consciousness, as these were the first motor symptom in twenty of my cases.

8th. That among mental symptoms the marked exhilaration, with delusions of wealth and greatness, which is usually considered the characteristic mental symptom, is present early in less than one fourth of the cases, and that simple failure of mental capacity and activity, and mental depression are the more frequent first mental changes.